

**REMARKS**

Claims 16-30 are pending in the application. By this Amendment, claims 22, 24, 27 and 30 are amended, and claims 16- 21, 23, 25-26 and 28-29 remain unchanged.

Reconsideration in view of the above amendments and the following remarks is respectfully requested.

**Objection to the Specification**

The office action includes objections related to informalities. Applicants have amended the specification herein to add section headings as well as citations to claims cancelled by the preliminary amendment.

**Rejections under 35 U.S.C. §112**

Claims 22, 24, and 27 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have amended the claims in a manner thought to resolve any issues with the claims.

**The Claimed Invention**

The present invention relates to a dishwashing machine having a novel filter system for cleaning dishwashing liquid. The invention also relates to a method of using the novel filter system to clean the dishwashing liquid. In the present invention, the filter system includes a foam volume, and the filter system and a container of the dishwashing

machine are communicated with one another such that at least some of the dishwashing liquid can be discharged from the dishwashing container in association with a washing cycle of the dishwashing machine to a foam volume for passage of the discharged dishwashing liquid through the foam volume. In this manner, dishwashing residue contained in the dishwashing liquid is at least partially absorbed or retained by the foam volume.

In the invention, capturing dishwashing residue in the foam allows for prevention of the dishwashing residue clogging parts of the dishwasher. It also allows for a better cleaning result.

**The Rejections under 35 U.S.C. § 103(a)**

Claims 16-22, 24, 26-28 and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kim et al. (U.S. Patent Publication No. 2002/0074026) in view of Kemper (U.S. Patent No. 6,413,366). Claim 25 stands rejected under § 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Kemper, and further in view of Damron et al. (U.S. Patent No. 6,402,855). Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kim et al. in view of Kemper, and further in view of Valenzuela et al. (U.S. Patent No. 5,234,112). Applicants respectfully traverse these rejections.

The present invention recites "a filter system for cleaning dishwashing liquid, the filter system including a foam volume and the filter system and the dishwashing container being communicated with one another such that at least some of the dishwashing liquid can be discharged from the dishwashing container in association with

a washing cycle of the dishwashing machine to the foam volume for passage of the discharged dishwashing liquid through the foam volume, wherein dishwashing residue contained in the dishwashing liquid is at least partially absorbed or retained by the foam volume.” The grounds of rejection acknowledge that this feature is not disclosed in Kim et al. Rather, Kim et al. is used in the grounds of rejection to show a conventional dishwasher having a filter system. In the conventional Kim et al. dishwasher, referring to Figure 1, the filtering means includes a water collector 60 disposed below a bottom surface of a case 10, a primary filter (coarse filter) 62, and a secondary filter (fine filter) 64 which are installed in the water collector 60. Larger garbage particles are filtered out by the primary filter 62 preventing a drain port from clogging, and smaller garbage particles that have not been filtered by the primary filter 62 are filtered by the secondary filter 64, and discharged together with the washing water through the drain port of the drain pump 50 (see paragraph [0012]).

To make up for the lack of teaching of a filter system having a foam volume as in the present invention, the grounds of rejection state that Kemper teaches a filter for removing contaminants from a solution using foam such that the liquid solution is passed through the foam in order to remove contaminants from the liquid (citing the Abstract; col. 2, line 30 - col. 3, line 7 of Kemper). Therefore, the grounds of rejection allege that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the filter taught by Kemper in place of the filter of Kim et al. with a reasonable expectation of success because Kemper teaches that the filter removes contaminants from an incoming liquid by use of foam in order to retain the contaminants

in the foam.

Applicants respectfully submit that this combination can only be made using impermissible hindsight in view of Applicants own teachings in the present specification. The grounds of rejection point to no teachings in either Kim et al. or Kemper of using a Kemper-type filter in a dishwasher. Rather, Kemper is related to a filter process for separating at least a part of suspended contaminating particles out of a suspension containing fibrous material. The flotation process in Kemper is quite different than the foam dishwashing process used in the present invention. The Kemper process utilizes the differences between fibrous material and undesired solid particles in such a way that the fibrous material remains in the fiber suspension due to its hydrophilic nature whereas the mentioned material particles are hydrophobic and, therefore, move into the foam along with the air bubbles. As such, the material particles that Kemper relates to are primarily related to ink particles and adhesives, fine plastic particles, and resins (see col. 1, lines 11-36). Accordingly, one of ordinary skill in the art would not look to Kemper for a dishwashing filter solution.

Further, Kim et al. teach at paragraph [0014] that its dishwasher and filter system requires both the circulation pump 40 for use in the washing and rinsing processes and the drain pump 50 for use in the draining process. Therefore, there are problems in that the structure thereof is complex and the production costs thereof are high. One of ordinary skill in the art at the time of invention, therefore, would not be motivated to further add to this complexity and cost by including additional components required for the introduction of a gas into the Kim et al. system. As such, Kim et al. teaches away

from the present invention. Therefore, Applicants respectfully submit that independent claims 16 and 27 are allowable, as well as their corresponding dependent claims.

Further, dependent claim 17 recites a feature whereby “the filter system includes a foam developer operable to mix liquid formed of at least one of the dishwashing liquid and a non-dishwashing liquid with air to produce the foam volume.” The grounds of rejection state “regarding the recitation "mix ... at least one of the dishwashing liquid and a non-dishwashing liquid with air", this recitation is a statement of intended use which does not patentably distinguish over the modified Kim et al. system since the modified Kim et al. system meets all the structural elements of the claims and is capable of mixing the dishwashing liquid with air if so desired (citing MPEP 2114). However, Applicants respectfully submit that neither Kim et al. nor Kemper teach the claimed structural feature of a foam developer that mixes dishwashing liquid and non-dishwashing liquid.

**CONCLUSION**

In view of the above, allowance of claims 16-30 are respectfully requested. If the Examiner has any questions regarding the remarks herein, the Examiner is kindly requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

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